Comments and responses relating to the first draft of the risk profile on Dechlorane Plus (DP) and its isomers

Source of Comment	Page	Para	Comments on the first draft of the risk profile on Dechlorane Plus and its isomers	Response
Canada	General comment: To Executive summary		Please note that editorial suggestions have been included throughout document, to correct typographical/grammatical errors or to improve the readability of the document. When available, it would be useful to add the specific detection limit for non-detect results	Comments noted.
Canada	3	1	It is suggested to include the acronym here, since it is used onwards in the Executive Summary.	Accepted
Canada	3	3	Please italicize 'syn' and 'anti' throughout the document, for consistency.	We will do that.
Canada	3	3	Consider rephrasing to avoid a double negative statement, e.g., '*DP and its isomers are known to be intentionally produced.*'	Sentence has been amended.
Canada	3	4	Consider listing the Countries, or if there are too many, include the approximate number of countries.	The statement has been removed since it is, at this point, difficult to provide detailed import and usage data.
Canada	3	7	Comment to "... and therefore not likely bioavailable for microorganisms." - There is uncertainty with regards to the accuracy of this statement. Microorganisms may still see exposure, though perhaps pelagic critters would be most « removed » from the substance due to its low water solubility and high sorption? Canada (2019a) reports that DP's complex structure makes it not amenable to microorganism attack.	Text has been edited.
Canada	3	7	Consider specifying which substances are considered DP analogues	Edited.
Canada	3	9	Ambient air may also contribute to the exposure of the general population. In addition, could the general population also be exposed from products and articles?	Ambient air was included, since indoor air and dust is mentioned it is implicit that this is from products
Canada	4	10	In this paragraph, consider making separate statements for toxicity to human health and to the environment	A sentence concerning human effects has been added.
Canada	4	10	To avoid redundancy, it is suggested to remove 'oxidative stress' since this effect is discussed in the next sentence.	Suggestion has been included.
Canada	4	10	Suggest specifying in which species these effects have been observed. The previous statement regarding general population exposure may lead the reader to consider these human health effects	Paragraph has been amended with information.
Canada	4	11	Comment to " It is also persistent, bioaccumulative, toxic to animals and humans" -There is uncertainty regarding this statement. The Canadian assessment (Canada, 2019a) did not identify any human studies for human health characterization, and no human study is reported in this document.	Comment noted, and some amendments made to the text.

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Canada	4	Table 1	It is suggested that the isomers be added, since the CAS numbers of the isomers are included in the table.	Suggestion accepted.
Canada	4	Table 1 and 2	Suggest clarifying if properties pertain to DP or its isomers.	Properties is based on the commercial mixture and thus with both isomers. Headline amended to clarify this.
Canada	4	Table 1	Suggest adding the units. To MW	Unit is added.
Canada	4	Table 2	Throughout the document, please specify if the reference 'ECHA, 2017' is ECHA, 2017a and/or b?	Reference has been amended.
Canada	4	Table2	Comment to Henry Law - Please specify the value that was used for this property (could perhaps be added to the table).	Added.
Canada	5	Table 2	Comment to "EPWIN and HENRYWIN" -It is suggested that the name of the model be spelled out in a note to the Table.	Foot note added.
Canada	5	17	Comment to (US, EPA 1978). - It is noted that this reference is very old. The manufacturing process may have changed over time, and some of these impurities are perhaps not found in the technical product at present. Consider confirming this information with a more recent reference.	Comment noted, however at the moment we have no other information.
Canada	5	17	Comment to "... such as tetrachloroethylene, hexachlorobutadiene, pentachlorocyclopentenone, octachlorocyclopentadiene, hexachlorobenzene, pentachlorobenzene and mirex " - A note should be added to point out that some of these chemicals are listed POPs.	Information has been added.
Canada	6	Fig 1	Please add a reference to Figure 1 in the text.	Reference may not be needed as these are from Wikipedia.
Canada	6	18d	Please revise to include the most recent documents.	Text has been amended.
Canada	6	19	Comment to "To align risk management activities within the European Union (EU) and the potential listing under the Stockholm Convention, an Annex XV REACH restriction dossier for DP will now be prepared by Norway". - As there are no current risk management obligations under the Stockholm Convention, the sentence needs to be revised.	Text has been amended.
Canada	7	23	It is suggested that this be removed. Information on import quantities for Canada is reported in Section 2.1.1.	Text has been amended
Canada	7	23	Since the final Screening assessment has been published, please remove references to the draft assessment (Canada, 2016) and replace with the final assessment (Canada, 2019a), throughout the document.	Text has been edited.
Canada	7	23	Please add the following clarification with regards to the conclusion of the Canadian risk assessment. DP was not found to meet the criteria for toxicity to human health.	Text has been edited.

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Canada	7	23	"The proposed regulatory approach is to amend the *Prohibition of Certain Toxic Substances Regulations, 2012* to prohibit the manufacture, import, use, sale and offer for sale of DP and all products containing the substance (Canada, 2019b)." - The following revision is suggested to clarify that this is a proposed regulatory approach, and to specify which Regulations would be amended.	Information has been revised as suggested.
Canada	7	22	Comment to "US TSCA list" -Please check reference. This information was not found in Canada, 2016. In addition, we recommend using a US reference, since this relates to US Regulations.	A link to [HYPERLINK "https://www.epa.gov/tsca-inventory"] was included.
Canada	7	24	Comment to Thailand information. -Please clarify the requirements for manufacturers as the text currently only refers to importation.	We have not received detailed information for manufactures from Thailand.
Canada	7	24	Please ensure Annex E information is referenced in a consistent manner throughout the document (e.g. paragraphs 34 and 41).	Suggestions accepted.
Canada	7	27	The global annual production is approximately 5000 tonnes (Ren et al., 2008). Based on surveys conducted under section 71 of CEPA for the years 2011 and 2016, between 1000 and 10 000 kg of DP, including DP in some products, was imported into Canada by a few companies (Canada, 2019a; 2019b). "Please revise to include this more recent information".	Text edited.
Canada	7	28	"The use of DP comes exclusively from anthropogenic sources, as there are" Editorial suggestion. It sounds odd to open the uses section with a fact about the source of the chemical. If this proposed sentence is not accepted, please consider under the heading '2.1 Sources', including a sentence or small paragraph about there being no natural sources, therefore, sources come exclusively from anthropogenic sources, such as…	Text has been edited.
Canada	7	28	"flame-retardant" For consistency, either keep or remove the hyphen throughout as it appears both ways.	Accepted.
Canada	8	28	"without contact intentions" Maybe helpful to provide further explanation.	This is how it was stated in the Annex E information submitted by the Netherlands. However, text has been edited.
Canada	8	30	"Notebook" Suggest replacing with 'laptop'.	Text has been edited.
Canada	8	31	"a computer" Should this be plural? Or was DP only found in one type of computers?	The analysis was performed on plastic casting from one computer. Text has been edited for clearification.
Canada	8	33	"flame retardant additive" Editorial suggestion. Would it perhaps be better saying 'additive flame retardant', or is the current wording appropriate, assuming it is part of a larger mix of flame retardants?	Edited.
Canada	8	36	"Norwegian Environment Agency, 2018; 2019)"	Edited.

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			For both, please specific a or b.	
Canada	8	36	"In addition, sludge from WWTPs contaminated with DP is" Consider removing. Expanding contamination to substances other than DP may not be useful for this document.	Text has been edited.
Canada	8	37	"The annual release of DP via sewage sludge from WWTPs were estimated to 164.8 g (Xiang et al., 2014)." Please clarify which WWTPs are included in this total.	Text has been edited.
Canada	9	42	"a number of analogue chemicals" Consider specifying which substances are considered DP analogues.	Information has been added.
Canada	9	43	"surface." Consider revising and adding the normal range UV in the environment for the readers ease. For example, *"Since the normal range of UV exposure in the environment falls between X and Y nm (UV-C), DP is considerably photo-stable and will not degrade..."*	No changes made. Not sure if we capture your point. The majority of UV exposure in the environment is UV-A.
Canada	9	44	"Based on modelling data comparing DP to analogue substances and data showing lack of degradation in soil and sediments over time as well as low ability to biotransform in fish." This seems like an incomplete sentence, please check.	Text has been edited.
Canada	10	47	"Serum" Was there also a value for liver, like for *syn*-DP? If so, consider adding.	No, depuration time for anti-DP for the liver was not reported. It is now stated in the text.
Canada	11	54	"Summary", As an editorial suggestion, there could be greater concordance between this summary paragraph and the bioaccumulation paragraph in the Executive Summary.	Text in "summary" (paragraph 54) been edited.
Canada	11	55	If these are one for each isomer, please consider indicating that. If not, simply put as high as 99%.	Text has been edited and now reads "…as high as 99 %".
Canada	11	55	Consider revising - it's unclear if this means in the particular phase in an aqueous environment or if it's found predomiantely in both the particulate and aqueouse phases	Text has been edited.
Canada	11	56	If this information is found in Sverko et al. but originates from another study, consider referencing the study from which the data originated.	No changes made as Sverko et al. is the original source to this information. Sverko et al. 2011 cites two studies that explains the methods used in their modelling.
Canada	11	56	Is it also presumed to be the primary mode in other substances with low vapour pressure or is it found to be that way for other substances? If "found" and not "presumed" consider revising to state that more clearly.	Considering the available knowledge for DP and decaBDE, "presumed" was been replaced with "found".
Canada	11	57	Consider providing the full name of the models.	Accepted. Text has been edited.
Canada	11	57	This study is not in the reference list.	Wegmann et al. 2009 is now in the reference list.
Canada	11	57	Rewrite text in last sentences to "As presented in Canada (2019a), the characteristic travel distance calculated for DP in air using this model is 2508 km, which is below the boundary of 5097 km suggested for global pollutants. The transfer efficiency for DP was calculated to be 9.7%, which is above the boundary of the reference substance PCB-28. The high transfer	Accepted with minor modifications. Text has been edited.

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			efficiency indicates that DP may be deposited to some degree in remote regions. Furthermore, an overall persistence of 213 days is predicted for DP emission to air, with the model estimating 98.82% of the substance in air being partitioned to aerosols. This suggests that particle-bound transport may be important for long-range transport of this substance."	
Canada	11	58	This has been updated in Vorkamp et al. (2019) Current-use halogenated and organophosphorous flame retardants: A review of their presence in Arctic ecosystems. Emerging Contaminants, 5: 179-200.	Vorkamp et al. 209 was added to the references.
Canada	11	59	Please specify a or b.	Accepted. Changed to Yang et al., 2016a
Canada	11	59	Please specify a or b.	Accepted. Changed to Norwegian Environment Agency 2018a
Canada	11	59	Letcher et al., 2018 not included in the reference	Reference was included in reference list.
Canada	11	61	Editorial suggestion – a cruise sounds as though it was for pleasure/leisure purposes	Changed to "sea expedition" as suggested
Canada	11	61	Consider pg/m^3 or changing all others to the $^{-x}$ format for consistency.	Changed to pg/m^3
Canada	11	61	Consider reporting the MDL value.	MDL was replaced with "not detected".
Canada	12	62	Editorial suggestion – a cruise sounds as though it was for pleasure/leisure purposes	Changed to "expedition" as suggested.
Canada	12	63	Please verify whether this should be 'Sub-Arctic'.	Little Fox Lake is in the Canadian Sub-Arctic. Text has been edited to reflect this.
Canada	12	63	Please consider reviewing/adding the following publication: Yu et al. (2015) Multiyear measurements of flame retardants and organochlorine pesticides in air in Canada's western sub-arctic. *Environ. Sci. Technol.*, 49 (14): 8623 - 8630	Reference was added.
Canada	12	63	Please check this value. Xiao et al. (2012) reported median of 0.18 for syn-DP and 0.36 for anti-DP (mean of 0.18 for syn-DP and 0.57 for anti-DP) for Alert 2006-2007 samples.	Text has been amended to better reflect which values come from which location/ study.
Canada	12	63	Yu et al. (2015) reported median values of 0.050 pg/m^3 for syn-DP and 0.046 pg/m^3 for anti-DP.	Text has been amended to better reflect which values come from which location/ study.
Canada	13	65	Not in the reference list. Could this be 2007?	This is correct. Reference has been corrected and is now in the reference list.
Canada	13	68	Suggest deleting – redundant	Accepted.
Canada	14	69	Suggested addition since this paragraph is supposed to focus on exposure specifically.	Accepted
Canada	14	69	Consider defining DBDPE	Text has been edited.
Canada	14	69	Is there any data that is more recent? (2020 could already be the near future.)	At this point we don't have a newer publication
Canada	14	70	Please specify a or b.	Accepted. Changed to Yang et al., 2016a
Canada	14	72	Please specify a or b.	Accepted. Changed to Norwegian Environment Agency 2018a
Canada	14	72	Please verify this number.	Text has been edited/ corrected.
Canada	14	73	Both of the values are for females. Suggest	Accepted, the information in the text has

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			making sure this information is accurate.	been corrected.
Canada	14	74	Suggest removing the hyphen or keeping it throughout as both forms are used. If using it for West, should it also be used for East?	Text has been edited. Will use East-Greenland and West-Greenland throughout the text.
Canada	14	74	There is a lot of data from many studies in several regions, it might be helpful to add some of the comparable values to a table as well to make it easier for the reader to compare locations.	An INF.doc with tables is in preparation.
Canada	15	75	Editorial suggestion, but also, why was it presumed?	Text has been edited.
Canada	15	78	This has already been defined.	Text has been edited as suggested.
Canada	15	79	Editorial suggestion – move this paragraph up to continue the previous one. It's all part of the same explanation.	Accepted.
Canada	15	80	Suggest either putting all scientific names or none throughout for consistency.	Due to the page limitation on the risk profile we will not include Latin names for species.
Canada	16	81	It is not clear what was happening at these two sites. Suggest cutting this into two sentences and maybe elaborating on what was happening at the two sites close to the production sites as it is useful/pertinent information.	Text has been edited.
Canada	16	81	Shunthirasingham et al., 2018 not in the reference list.	Added to the reference list.
Canada	16	81	This contradicts the next paragraph	Text has been edited.
Canada	16	81	Salamova and Hites (2011) not in the reference list.	Added to the reference list.
Canada	16	81	Consider providing more information. Are these similar sites? Did Salamoca and Hites explore Point Petre?	Information is added.
Canada	16	82	Qiu et al., 2010 not in the reference list.	Added to the reference list.
Canada	16	82	There maybe not be enough information in this sentence to make the assumptions given. How long was the study? Did it occur over different seasons? Over months? Years?	Information added.
Canada	16	83	"…a large intraspecies variation in concentrations". Please clarify what is the significance of this?	Text has been edited to clarify this point.
Canada	16	83	Báron et al., 2011 not in the reference list.	Text has been edited and reference corrected to Baron et al. 2015
Canada	16	83	Editorial suggestion, no need to specify.	Accepted.
Canada	16	83	Please specific the timeline for these trends (over how many years?).	Text has been amended to include information on time period.
Canada	17	85	Comment to first sentence - Could the general population also be exposed from products and manufactured items?	Information has been added.
Canada	17	85	Since many details are being left out, it may be useful to refer to the section in which this study was mentioned previously. Some may not read the entire document and the background information above could be useful.	Reference inserted.

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Canada	17	85	(Hassan and Shoeib, 2015). Not in the reference list.	Reference has been added.
Canada	17	85	Comment to Cequier et al., 2015 - Consider including information pertaining to indoor air, since this was also measured in the study.	Some information about air concentrations was included.
Canada	17	85	Comment to "Furthermore, grain was the contributed food group to daily intake for Korean population." - Consider revising – it's unclear what is being said here. Is it that grain containing DP was one of the highest contributing food groups to the daily intake of the Korean population?	Sentence has been amended.
Canada	17	85	(□DP 170 pg/g ww) - Why is this one in brackets after the food and the other ones are not? Suggest following the same structure within the sentence for consistency.	Bracket removed.
Canada	17	86	Perhaps we could suggest what it might mean having similar atmospheric concentrations in Japan and China, despite no DP manufacturing in Japan?	Sentence was reorganized.
Canada	18	88	Comment to "However, the younger volunteers, 20 to 29 years old, had the highest serum concentrations, mean □DP was 3.6 ng/g lw compared to around 7 ng/g lw for the younger volunteers (Wang et al., 2014)." - Please revise this sentence as both groups are called younger volunteers.	Sentence has been revised.
Canada	18	89	Comment to ", their DP levels were significantly higher than ~~those~~ in most individuals of the ~~other~~ two control groups from the nearby area (Zhang et al., 2013). Suggested revision to improve the clarity of the sentence. Please ensure the information is still correct.	Sentence has been revised.
Canada	18	90	(Čechová et al., 2017). Not in the reference list.	Added.
Canada	18	90	Comment to " ($p < 0.05$)" Consider being consistent throughout the document when discussing 'significant' results (i.e. sometimes p values are provided, other times not). It is suggested that this level of details may not be not needed for the risk profile, and that these could be removed.	Confidence level was removed.
Canada	18	91	Please use consistent terminology throughout the document when reporting ratios, fractions (e.g. 1:3, 25%, 0.25). Is this number rather referring to a fraction? If so, please specify if this is f_{syn} or f_{anti}.	Comment noted.
Canada	18	91	Comment to " concentration ratio" Fraction?	No, the meaning is concentration ratio of the particular isomer between maternal serum and cord blood.
Canada	18	91	Comment to Ben et al., 2013b: - Again, when there is a lot of comparative data,	Levels in human tissues will be provided in a table in the information document.

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			it might be useful to have a table as well as the written version for easier comparison by the reader.	
Canada	18	92	Suggest removing "oxidative stress" since this effect is discussed in the next sentence.	Text revised.
Canada	18	92	Comment to "...oxidative damages, neurotoxicity and potential for endocrine disruption" - Suggesting giving examples of the species in which these effects were observed	Text has been revised.
Canada	18	92	Comment to " DP has also been reported to cross the blood-brain barrier and to be maternally transferred to off-spring in several species (reference(s)). " - Please add reference(s). - This refers to exposure as opposed to hazard. Suggest removing from the Hazard section and incorporating into the 'Environmental levels and trends' section.	Information moved to bioaccumulation section.
Canada	18	93	Would bivalves be considered primary producers? Consider rephrasing.	Sentence has been revised.
Canada	18	94	Comment to "oral exposure" - Should this be exposed via the diet? While mussels do have a mouth, as filter feeders, oral exposure may be an unusual description.	Oral was deleted.
Canada	18	97	Comment to " CYP1B1 gene expression was significantly upregulated at all timepoints and concentrations in both the liver and brain, in addition were CYP2B and CYP3A1 and the apoptosis related factors bax and bcl-2 altered in liver." -Consider revising - This sentence is quite long and packed full of data; it may be simpler for the read if it was broken up into at least two sentences.	Sentence divided.
Canada	18	98	Comment to "increased number of glia" - Editorial suggestion – this is just a type of abnormality, so it does not need to be qualified, especially since none of the others are qualified	Increased number of glia is a common response to damage on neuronal cells, so even though the actual quantitation is not presented is the information informative for indicating toxicity mode of action. We suggest keeping this.
Canada	20	2.4.2.	Consider adding a discussion on the use of analogues. In the Canadian assessment (Canada, 2019a), chordane and mirex were used as analogues to assess risk to terrestrial organisms	Comment noted, however in this case we have some studies of DP to consider, so no changes made to the text.
Canada	20	101	Comment to (Yang et al., 2016). -Statisitically significant?	Yes, added.
Canada	20	104	Consider defining PROD and ERND	Added.
Canada	20	106	Is there a reference to this statement?	Reference added.
Canada	20	107	Comment to Wu et al., 2012 : Please note that the Canadian assessment (Canada, 2019a) considered the observed physiological changes in this study as not adverse.	Comment noted. However, the study is more indicative of molecular mode of action for DP.

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Canada	21	109	Consider defining PPAR□□	Definition added.
Canada	21	110	As per our previous comment, suggest removing as this relates to exposure, as is already discussed in the 'Human exposure' section.	This paragraph was moved to the human exposure section.
Canada	22	111	Comment to "...could potentially lead to adverse effects" - If it's argued that the substance does elicit adverse effects, the wording here somewhat undermines the assertion. If "potential" for adverse effects is the approach being taken, is there any benefit in addressing that directly in terms of precautionary decision making?	Sentence was amended.
Canada	22	113	Comment to "...and humans due to oxidative stress " - As per our previous comment, please note that the findings of oxidative stress response in the liver and physiological change of mice (Wu et al. 2012) was not considered adverse in the final screening assessment (Canada 2019).	Comment noted. However, oxidative stress is involved in many of the lifestyle diseases observed in humans today. In the view of a precautionary manner and concept of Stockholm Convention based on this substance being very bioaccumulative and persistent, we prefer to have this statement as proposed. The sentence also state "potential adverse effects".
Canada	22	113	Comment to ". Adding to the concern for adverse effects is the lack of toxicity information on DP by-products such as 1,3- or 1,5-Dechlorane Plus monoadduct (DPMA)" - It is suggested that this gap be discussed in the toxicity section, since this is the first time this is mentioned. -Suggest specifying if this is for environmental or human health	Comment noted, and a separate section has been made in the toxicity chapter. Since the detection may be under-reported because of use of destructive sample preparations it we do not have complete knowledge if this is only related to the environment. No amendments to the text added.
Canada	22	113	Comment to "Additionally, the combined effect of climate change and other environmental stressors adds to the risk...." - Please consider whether this broad statement, which could be applied to any contaminant, is advancing the case for listing DP? - Please consider whether this broad statement, which could be applied to any contaminant, is advancing the case for listing DP?	Comment noted, sentence has been removed.
Canada	22	118	Comment to "…. a risk for adverse effects for..." -Suggest separating statement into environmental and human health concerns	An indication is given in the text.
Canada	22	119	Comment to " of climate change and other environmental stressors adds to the risk posed by environmental pollutants.... " -Please review as per previous comment	Comment noted but no change made as in this case it is quite clear that the environment is meant.
Canada	22	120	Comment to "human health" -Based on the uncertainty and data gaps associated with the human health effects database, caution is suggested when making this statement	Comment noted, however, this statement has to be viewed in a perspective of the Stockholm Convention based on precautionary manner. No changes made to the text.
Egypt	7	29	Comment to: As a flame retardant, DP is used in many	A more thorough information will be given in the information document which are to be prepared.

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			polymeric systems. ...materials ranges from 8% in PBT up to 40 % in silicon rubber (OxyChem 2007). .. overall DP concentration in e-waste was 33±11 mg/kg. -need more confirmation	
Egypt	19	103	Comment to "No overt toxicity has been observed for DP in birds." -Need more discussion and evidence	Comment noted. However, at the moment we have no more studies available.
Egypt	19	106	Comment to "According to available assessments and laboratory studies with mammals suggests that DP is not carcinogenic, mutagenic or toxic to reproduction (as reviewed in ECHA, 2017b; Canada 2016). Other effects in mammals have however been reported." -Need more data and evidences confirm that DP NOT carcinogenic	We do agree, however based on present knowledge, which is quite limited, this is the conclusion.
Egypt	19	107	Comment to "... there are some data gaps e.g. long-term studies exceeding 90 days are missing" - Need more clarification	Some more information has been added.
Germany	3	5	In the previous sentence and paragraphs, DP is used as singular, which I believe is correct, please correct throughout the document. It could also be defined as plural if it is always meant to include the two isomers, but please stick to one interpretation.	Comment noted.
Germany	3	6	Please remove "on particles " last sentence	Text has been edited.
Germany	3	7	Please consider rewriting: " DP has very low water solubility and a high logK_{ow} and is thus expected to bind to organic matter in soil and sediments. Therefore, ~~not likely~~ it is probably not easily bioavailable for microorganisms.	Text has been edited.
Germany	6	18	Comment to Decision POPRC-15/4 - Although the decision was that DP fulfills the criteria of Annex D, we believe that it would be wise to capture that actually there were doubts on whether the toxicity criterion is fulfilled, and that the decision to move DP on to the risk profile stage was also to use the opportunity to gather further information was to be used to evaluate whether there is information on adverse effects of DP.	Comment noted and no amendments made to the text since this information is captured in the report to the meeting.
Germany	7	26	Consider shortening: " The SIN List ~~is a list of hazardous chemicals~~ consisting of chemicals that have been identified by ChemSec as	Accepted.
Germany	7	27	"Anpon in Huai'an" Add town – this is mentioned in summary. There is no reason for the summary to contain more information than the full text	Text has been edited.
Germany	7	28	"without contact intentions." Contact to humans or to electric contacts?	Text has been edited. Also addressed my others.

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Germany	8	33	Add link (Link to ECHAs web site)	Done.
Germany	8	37	"164.8 g" 164.8 g per treatment plant or from all treatment plants? worldwide? in China? Insufficient context.	Text has been edited.
Germany	9	42	"Distinguishable" What does this mean in this context? distinguishable from what?	Text has been edited for clarification.
Germany	9	42	"that *syn*-DP varied little " degradation of syn-DP?	Possible explanation is already stated in the text.
Germany	9	43	"Based on modelling data comparing DP to analogue substances and data showing lack of degradation in soil and sediments over time as well as low ability to biotransform in fish." Unclear sentence structure. Also, it is unusual to refer to modelling data if degradation tests are available.	Text has been edited.
Germany	10	47	"bioaccumulation " Bioconcentration refers to uptake only from the surrounding medium, biomagnification only from food, and bioaccumulation is the general term that is also used if it is not absolutely clear which path is responsible.	Text has been edited.
Germany	10	51	"DP has been shown not to metabolize easily in biota (Tomy et al., 2008; Xian et al., 2011). Degradation products of DP have been detected in bird eggs (Guerra et al., 2011; Muñoz-Arnanz et al., 2011, 2012; Zheng et al., 2014a), but some studies suggest they are formed through biotic or abiotic processes prior to uptake or even through analytical impurities (Sverko et al., 2008, 2010; Tomy et al., 2008; Zheng et al., 2010, 2014b)." This is pretty vague. Have transformation products been identified ?	Text has been edited. Measures in Tomy et al. was under detection limit.
Germany	11	57	Something is missing in this sentence: "These values are respectively below and above boundary of the reference substance PCB-28, but the high transfer efficiency indicates that DP may be deposited to some degree in remote regions."	Text has been edited.
Germany	13-15	69-85	The amount of data (in 2.3.1 Environmental levels and trends) in makes it very difficult to keep track of relevance of data and of environmental levels of DP in relation to known POPs such as PBDE. I look forward to the presentation of data in the INF document	Comment noted.
Germany.		2.3.1.	The amount of data makes it very difficult to keep track of relevance of data and of environmental levels of DP in relation to known POPs such as PBDE. I look forward to the presentation of data in the INF document in the hope that that will help	Comment noted. Comparing DP levels with the levels of other POPs is beyond the scope of the risk profile. However, we hope the INF.doc, when ready, will help provide a better overview of the levels of DP. In some instances, comparisons of DP levels to levels of listed POPs and other emerging pollutants will be provided.
Germany	16	87	Comment to " grain was the contributed food group "- Meaning unclear	Sentence has been amended.
Germany	16	87	Comment to "(legumes and their products)," - vegetables?	They have several vegetable category groups in their study, so the type of vegetables was included for clarity.
Germany	17	87	Comment to "0.03 □g/kg/d,"	Unit written as in the rest of the paragraph.

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			- it would be useful if you would not mix the orders of magnitude within one para (see marked units)	
Germany	17	87	Comment to " High dietary intake of halogenated flame retardants (HFRs) via home-produced eggs in Baihe village," -verb missing	Sentence has been rewritten.
Germany	17	90	Comment to "associated with their age" - perhaps also to number of children?	No children were included in the study.
Germany	18	93	Please amend first sentence as suggested: " DP has low water solubility and will partition to particles, sediment and biota in the aquatic environment"	Text has been amended.
Germany	20	107	Comment to " The dosing vehicles might also limit exposure (e.g. due to the presence of undissolved micro-crystals), such that the high "doses" might not truly reflect the degree of exposure of the organisms." - Sounds speculative. Does this come from the reference or is it an interpretation of the drafters?	Reference added.
Japan	3	10	Oxidative stress/damage, neurotoxicity, endocrine disruption are not strong results of toxicity.	Comment noted. Neurotoxicity and endocrine disruption may both be strong results of toxicity in our opinion. While the organism may be able to handle oxidative stress/damage by activating/ upregulating antioxidant defense and repair mechanisms, reactive oxygen species are important signaling molecules. These could trigger unwanted effects by activating signaling cascades regulating cell death and cell survival and by causing damage to DNA, protein, telomeres, cells, tissues etc. Oxidative stress is linked to ageing and disease and could be the extra stressor that lead to "overload" in the wildlife with multiple stressors.
Japan	3	10	Please describe the effect on offspring.	Some more information is added in the 2.4.3.
Japan	3	11	Comment to "toxic to animals": - The results are not so many.	Comment noted.
Japan	4	Table 2	OxyChem datasheet (2007)- This reference is a broken link.	New link added.
Japan	9	2.2.1	Japan provides the results of the Biodegradation test (BOD=0.6%, Not ready biodegradable) conducted in Japan ([HYPERLINK "https://www.nite.go.jp/chem/jcheck/detail.action?cno=13560-89-9&mno=4-0296&request_locale=en"]).	No changes made to the text. Please provide the exact information since it is very difficult to obtain this from the link provided.
Japan	9	2.2.2	Japan provides the results of the Bioaccumulation test (BCF=87-121, not highly bioaccumlative) conducted in Japan ([HYPERLINK "https://www.nite.go.jp/chem/jcheck/detail	No changes made to the text. Please provide the exact information since it is very difficult to obtain this from the link provided. However, data provided in the risk profile

Source of Comment	Page	Para	Comments on the first draft of the risk profile on Dechlorane Plus and its isomers	Response
			.action?cno=13560-89-9&mno=4-0296&request_locale=en"]).	strongly show that DP is bioaccumulative and that it magnifies in the various food webs. In addition, the reported depuration times show that DP is not readily excreted from the species studied indication its high depuration half-life.
Japan	9	46	Comment to "log Kow 9.3 (Oxychem, 2004)." -This reference is different from that in Table 2, and no value for log Kow is found in this reference. Please correct the reference.	Edited.
Japan	10	51	"Degradation products of DP have been detected in bird eggs (Guerra et al., 2011; Muñoz-Arnanz et al., 2011, 2012; Zheng et al., 2014a), but some studies suggest they are formed through biotic or abiotic processes prior to uptake or even through analytical impurities (Sverko et al., 2008, 2010; Tomy et al., 2008; Zheng et al., 2010, 2014b)." It is interesting as research, but not an enough evidence for metabolism and bioaccumulativity of POPs compounds.	The statement is not presented as evidence for metabolism, rather it reflects the discrepancies in the results from the different studies; "but some studies suggest they are formed through biotic or abiotic processes prior to uptake or even through analytical impurities"
Japan	18	94	Comment to Baron et al. 2016 - EST bivalves, commet assay, bigger than BDE. Although there is possibility of DNA double chain breaks, other influences would appear if it is significant. - The value of toxicity is necessary	Comment noted, the paragraph has been added some more information concerning dosing and measured DP-levels, but this is a short-term study so to what extent these DNA damage will affect the organisms in the long-term are unknown, but it will add to the multiple stressors.
Japan	18	94	Comment to Gong et al., 2018 - The effective concentration is to be described - The value of toxicity is necessary - It seems there is not so significant influence looking at the data of sea lettuce, small increase in SOD, CAT increase at 10-7mol/L 65 ug/L.	Comment noted, and a general sentence has been added to summarize toxicology meaning of these two studies.
Japan	18	95	Comment to Baron et al., 2016 - Is this acknowledged as toxicity test? Is there guideline ?	Comment noted. The paragraph has been added some more information concerning dosing and measured DP-levels. No more information added to the paragraph. DNA-damage measured by comet assay and micronucleus assay is acknowledge as toxicity test. Validation of exposure regime and controls done in the experiment. There is not a requirement for standardized tests under Stockholm Convention as a weight of evidence approach is used.
Japan	18	95	Comment to " Gills were identified as the most responsive tissue" - It is not significant influence	Comment noted, however, we consider up to 82% increase in lipid peroxidation as an effect that could have impact on the organism in a chronic exposure situation in the environment.
Japan	18	95	Comment to Gagne et al., 2017 - Is this acknowledged as toxicity test? Is there guideline?	There is not a requirement for standardized test under Stockholm Convention as we use weight of evidence approach. The study is well described.
Japan	18	95	Comment to (Matsutani and Nomura, 1987). -The test method is to be described.	No changes done to the text, as this is a reference to set the observed effect in perspective. Due to page limit detailed information cannot be added. However,

Source of Comment	Page	Para	Comments on the first draft of the risk profile on Dechlorane Plus and its isomers	Response
				reference is open literature.
Japan	18	96	Comment to Chen et al., 2017 -The test method is to be described. - SOD 1.5 times at 60 ug/L. It is not significant influence. Please explain how it is related to toxicity.	Some more information has been added from the study due to other comments. Increased SOD is only one of the effects observed, and both oxidative stress and damage to the developing nervous-system and muscular part was observed, which all are related to toxicity.
Japan	18	97	Comment to Lian et al., 2014: - Is this acknowleged as toxicity test?	No changes made to the text. This is a study investigating underlying mechanisms to toxicity.
Japan	18	98	Comment to Li et al., 2019: - Please explain how it is related to toxicity. - Please describe organism species and how it is related to toxicity.	Li et al., 2019 was corrected to Li et al., 2019b, and toxicity to the juvenile carpe has been extensively described.
Japan	18	98	Comment to Li et al., 2019b last sentence: -The real contaminated concentration is below 1/1,000 in soil, below 1,000,000 in water. Is the high concentration of 120 ug/L meaningful ?	Particulate water in nature have higher concentrations than measured in pure filtered water used for solubility test, and effects was seen from 30 ug/L for toxicity testing a higher concentrations is often included to look for dose-response and to be sure that the magnitude of the response is strong enough to have certainty of the pattern.
Japan	19	99	Comment to oxidative stress observed in Hang et al., 2013 - Please describe details including test concentration. Please describe how it is related to toxicity	No change to the text. Details are presented in the following sentence for Hang et al., 2013. Some information of relevance of oxidative stress for toxicity has been added to paragraph 93.
Japan	19	99	Comment to "The proteomics profile in liver and brain was significantly altered and identified proteins were related to DNA damage, protein synthesis, immune response, cell apoptosis and cytoskeleton (Hang et al., 2013)." -Please describe how it is related to toxicity.	Some information of relevance of oxidative stress for toxicity has been added to paragraph 93.
Japan	19	99	Comment to Kang et al.,2016 -Please describe how it is related to toxicity -Please describe details including test concentration.	Some information about relevance of oxidative stress for toxicity has been added to paragraph 93.
Japan	19	99	Comment to de Groef et al 2006 -Please describe how it is related to toxicity.	No information added to the text. We believe knowledge of the importance's thyroid-hormone system with its interactors should be well known to the audience of Stockholm Convention.
Japan	19	100	Comment to: " Studies also show that DP can cross the blood-brain barrier in fish (Zhang et al., 2011) as well as in frogs (Li et al., 2014)." - Is it toxicity?	Comment noted. Sentence has been moved to set Li et al., 2019b in perspective since it is related to toxicity when the substance shove neurotoxic effects.
Japan	19	100	Comment to Marler et al., 2018 - Please describe details including test concentration.	Comment noted, however this is a monitoring study and not a controlled exposure study.

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Japan	19	101	Comment to " Co-exposure of zebrafish embryo from 6 to 96 hpf to DP (60 □g/L) and 3-methyl phenanthren (5 or 20 □g/L) resulted in elevated bioaccumulation of both compounds and synergistic effects on neurobehavioral abnormalties, axonal growth reduction, apoptotic markers in muscle and brain Ca^{2+} homeostasis (Chen et al., 2019". - Please describe how it is related to toxicity.	Some more information has been added to the study.
Japan	19	101	Comment to " Elevated bioaccumulation resulting from mixture exposure may represent a significant contribution of the synergistic effects observed in combined chemical exposure." -Is it just inferential ?	Some more information has been added to the study. Furthermore, this is quite common as compound may compete with the same xenobiotic export mechanisms.
Japan	19	102	Comment to Yang et al., 2016b - Please describe the concentration	Details of the study is included in the paragraph, and Yang et al 2016b was corrected to Yang et al., 2016.
Japan	19	102	Comment to " ... tail DNA in comet assay of isolated coelomocytes" - Reliable? Please describe the reference.	Comet assay on coelomocytes is a quite common method, and tail length is one of the parameters measured to validate number of DNA strand-breaks compared to control cells. No changes done to the text.
Japan	19	102	Comment to Yang et al., 2016: - Please describe the test method and other details.	This has already been provided in the paragraph. Yang et al., 2016b has been corrected to Yang et al., 2016.
Japan	19	103	Comment to " No overt toxicity has been observed for DP in birds, but studies indicate that DP is bioavailable and transfered to eggs. In paired samples of eggs and plasma from bald eagles from Canada DP was more aboundant in eggs compared to plasma with geometric mean of 0.28 and 0.43 ng/g ww in eggs from inland and Great Lakes, respectively versus plasma levels of 0.02 ng/g ww (Guo et al., 2018)." - Please describe how it is related to toxicity.	This information was moved to the bioaccumulation section.
Japan	19	106	Comment to "DP is not carcinogenic, mutagenic or toxic to reproduction (as reviewed in ECHA, 2017b; Canada 2016)." - DP is not carcinogenic, mutagenic or toxic to reprodduction. The following is good for scientific discussion, but not sufficient for human toxicity.	Some more information concerning these studies have been provided.
Japan	20	107	Comment to " The dosing vehicles might also limit exposure (e.g. due to the presence of undissolved micro-crystals), such that the high "doses" might not truly reflect the degree of exposure of the organisms." -It may be inferential. Please describe the conclusion.	Information on further study requested under ECHA to fill this gap is added.
Japan	20	108	Comment to " Wu et al. (2012) report liver impairments in mice at high-dose exposure. Following 10 days' oral exposure, oxidative stress and damage was induced in male mouse livers at all doses (500, 2000 or 5000 mg/kg-bw per day). "	Comment noted, the object of this study was to characterize DP toxicity in mice at the molecular level and chose to use doses used in the old toxicity studies for DP. No changes were made to the text.

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			- The doses are considerably high. Please describe how it is related to toxicity.	
Japan	20	108	Comment to Wu et al. 2012- comet assay: - It is difficult to consider dose-responce because of no increase in commet assay. If DNA is damaged, carcinogenecity and mutagenecity would be recognized.	Comment noted, no changes done to the text.
Japan	20	108	Comment to " Microarray analysis indicate that DP alter hepatic carbohydrate, lipid, nucleotide and energy metabolism as well as signal transduction processes" - Is it high toxicity ?	No changes made to the text. This is studies that may explain underlying mechanisms for toxicity.
Japan	20	109	Comment to " However, no significant changes in absolute body or liver weight or liver histopathology was observed. " - The increase or decrease in gene expression can be generated by subtle change of experimental condition. It is not considered to be a rigid evidence.	Comment noted, no changes made to the text.
Japan	20	110	Comment to "... DP may have some effects on thyroid hormone in humans (Ben et al., 2014)." - It is possibility. Is it confirmed? Please clarify how the influence to thyroid gland hormone is related concrete symptons.	Comment noted, no changes made to the text.
Japan	20	110	Comment to Guo et al., 2019: - Is it an effect by DP?	Comment noted, and no changes made to the text. Epidemiology studies can only indicate possible link between exposure and effect, and the effect observed will always have several confounders that some will be controlled for in the analysis.
Japan	20	110	Comment to " The *syn*- and *anti*-DP mean and range in serum was 57 (12-1000) and 58 (11-1450) ng/g lw in residents from the e-waste area and 3.2 (0.36-12) and 5.9 (0.67-38) ng/g lw for the control group (Guo et al., 2019)." - Is it better to exchange with the above report from Guo et al.?	This is from the same study.
Japan	20	112	Comment to " In humans, DP has been detected in cord serum (Ben et al., 2014) and in human milk (Siddique et al., 2012) showing transfer to offspring at different developmental stages. Maternal transfer of bioaccumulative substances *in utero* represents a potential risk to embryonic development and may represent the largest source of FR input to offspring during the first few years of life." - Is it severe toxicity?	Comment noted. This part was moved to the human exposure part.
Japan	21	115	Comment to "Available toxicity date indicate concern for potential adverse effect to the environment and humans due to oxidative stress that impact on several biological processes." - Please describe how much oxidative stress influences organisms. It would be applicable to all the chemical compoundss	Some information has been included in paragraph 93 to indicate relevance of oxidative stress to adverse effects.

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Japan	21	115	Comment to "...the combined effect of climate change and other environmental stressors adds to the risk posed by environmental pollutants by affecting the vulnerability and adaptability of organisms as shown for Arctic organisms (Routti et al. 2019). " - This opinion would be applicable to all the chemical compounds	Comment noted, and this will be relevant for all POPs. Sentence was removed.
United Kingdom (UK)	-	-	General comment to the 1st draft as a whole; "We thank the rapporteurs for preparing the risk profile. Our apologies that we have not been able to review the document in as much depth as we would like at this point	Comment noted.
UK		14	The UK prepared the Risk Management Options Analysis as part of our work for the SVHC identification of the Dechlorane Plus under REACH in the EU. We will send a copy to the rapporteurs as it provides more information on currently known uses. [Apologies for not sending this before as we thought that the document would be picked up in the European documentation reviewed for the Risk Profile]	Comment noted.
UK		Table 2	Typo for white powder	Corrected.
UK	6	20	Please add: In 2018, based on an Annex XV dossier and Risk Management Options Analysis prepared by the UK, DP was identified as Substances of Very High Concern (SVHC).	Text added.
UK		27	As per comment on paragraph 14, we will send the Risk Management Options Analysis that the UK prepared to the rapporteurs. We highlight two important points now, which are also covered in the published RMOA conclusion on the ECHA website ([HYPERLINK "https://echa.europa.eu/rmoa/-/dislist/details/0b0236e1819f981a"]). The one active REACH Registrant was an 'only representative' of the major Chinese manufacturer. The ECHA CHEM portal shows that the Oxychem registration for Dechlorane Plus was inactive (i.e. no current supply)	No changes made. We are using information from current registration under REACH.
UK		28 - 34	The ECHA website provides information on uses: [HYPERLINK "https://echa.europa.eu/registration-dossier/-/registered-dossier/11906/3/1/7"] We suggest that this source of information is also used for this section. In particular, there is information about the articles where DP is used. Note that two uses are advised against in the REACH registration: pyrotechnics and abrasives - [HYPERLINK "https://echa.europa.eu/registration-dossier/-/registered-dossier/11906/3/2/2"]	Some information has been added to the risk profile under section 2.1.2

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			Our understanding from the RMOA work was the firework use was similar to how HBCDD was used (its chlorine content).	
UK		40	Please reword: Furthermore, studies with fish indicate a very low potential for biotransformation provide supporting evidence that DP is metabolically stable, and therefore persistent in the environment (Tomy et al., 2008).	Accepted.
UK		41	Please indicate which models were used for ECHA 2017b	Information added.
UK		41	Please indicate what input data was used by Zhang et al 2016 to make their prediction – for example structure?	Information is added.
UK		42	Cheng et al, 2019 appears to be an important study so please provide a lot more detail about it in the risk profile.	Some information is added. However due to the 20 pages limit of the risk profile it is not possible to provide substantial details of complex studies referred to in the risk profile. The publication is publicly available.
UK		42	"inconstant and distinguishable" – please consider using a different phrase, as this current text is unclear	Text has been edited.
UK		44	Suggest to amend this paragraph based on the SVHC conclusion for REACH: Based on the weight of evidence of the data available, it is concluded that Dechlorane Plus meets the criteria for persistence in Annex D b(i). This is based on: • modelling of degradation potential and microbial metabolic pathways which suggests that biodegradation is likely to be very slow; and • a low probability that it will degrade any faster than structural analogues that are considered to be very persistent under the Stockholm Convention. • [point summarising Cheng et al, 2019] This conclusion is also supported by the very low water solubility (suggesting limited bioavailability to micro-organisms once bound to solid matrices), monitoring data indicating that the substance can persist in sediments (a major sink) for many years, Lack of evidence of biotransformation in fish (supporting the premise that the molecule is metabolically recalcitrant) and widespread occurrence in remote regions.	Some changes made to the conclusion.
UK		45-55	Please consider ordering the bioaccumulation data in this section as follows: • Screening data such as log Kow data • Aqueous fish bioconcentration data • Fish dietary data	Some reconstruction is performed in this section. However due to the limited time allocated to edit the first draft of the risk profile, it was not possible to spend more time on this task.

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			• Aqueous food chain data • Terrestrial bioaccumulation data (including mammalian half-life data) • Terrestrial food chain data • Other relevant biota monitoring that does not duplicate the exposure section • Conclusion (for example bring together half-life data in different taxa) Currently it is difficult to follow as different types of data are mixed together in single paragraphs. Please avoid cross-referencing until your concluding paragraph(s). Excessive cross-referencing makes the text more confusing rather than the evidence stronger.	
UK		45	As above, please move this paragraph to a later part of the section (paragraphs 52-53) where other monitoring is reviewed.	Accepted.
UK		46	Please indicate whether Guo et al., 2017; Malak et al., 2018; Kurt-Karakus et al., 2019 are lab or field studies	These are field studies. Information added.
UK		46	Please split this paragraph so that the Wang study is described in a separate paragraph	Accepted.
UK		46	Please include a lot more detail on the Wang et al 2020 study, for example: • Test concentration(s) used in the study • What constituted the "laboratory-scale microcosm" (I can only access an abstract) • Whether a solvent was used • Details of the chemical analysis used, frequency of measurement and values measured in water and fish • How the BCF values were calculated (e.g. kinetic, steady state) • Whether steady state occurred • Calculated depuration half-lives Please also provide a Klimisch score for the study	Some details are added. See comment above regarding the page limit of the SC risk profiles and the. There is no requirement under the SC to use the Klimisch score system.
UK		47	The Tomy et al 2008 study is the key study for bioaccumulation. Please therefore include more details of this study (which are available in the EU SVHC dossier)	No changes made. Due to the 20 pages limit of the risk profile it is not possible to provide substantial details of complex studies referred to in the risk profile. Further, necessary details are available through ECHA, 2017b.
UK		48	*Although isomer-specific bioaccumulation of DP has been addressed it remains unclear whether biotransformation occurs in organisms (Li et al., 2019).* Please clarify what biotransformation is unclear, as the opening sentence of paragraph	Text is edited.

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			51 states that biotransformation occurs?	
UK		50	The REACH SVHC dossier (p58) states the following: "Several field studies have attempted to measure biomagnification between trophic levels, in both aquatic and terrestrial environments. Some studies suggest trophic dilution, whereas others suggest trophic magnification. The lack of a standardised approach to the assessment of trophic magnification and other confounding factors (including variable exposure across concentration gradients in the sampled environment, small sample sizes, analysis of single tissues, and reliance on specific feeding relationships) mean that none of the studies is fully reliable." Please ensure that this uncertainty for the cited studies is acknowledged in paragraph 50, preferably by copying the text across. This uncertainty is why the BMF/TMF values were not used in the B conclusion for the REACH SVHC dossier.	No changes made. Your point regarding uncertainties in biomagnification studies are reflected by the references provided; (Borgå et al., 2012; Franklin, 2016). Furthermore, a number of new studies that report TMF/BMF, that were not included in the SVHC dossier, are reflected in the risk profile. These are; • Wu et al., 2018: this study also reports BMFs of know POPs such as PBDEs. • Sun et al., 2017: this study also reports BMFs of know POPs such as PBDEs, DDT and PCBs • Kurt-Karakus et al., 2019: this study also reports TMFs/BMFs of know POPs such as PBDEs. • Na et al., 2017: this study also reports BMFs of know POPs such as PCBs. Magnification of known POPs (benchmarks) in addition to DP in the above-mentioned studies strengthen the argument for biomagnification of DP in these studies.
UK		51	Please specify which degradation products have been observed	Information added.
UK		52	Please cite ECHA, 2017b as well as Canada 2016	Reference added.
UK		52	Please amend the second sentence so that correctly cites the text in ECHA, 2017b: *Field monitoring data suggest that DP is bioavailable and can* exceed levels in biota that are of concern based on critical body burden considerations related to baseline narcosis. *(ECHA 2017b).*	Text adjusted to reflect ECHA 2017b
UK		55	Please amend the first sentence: In summary, the long-depuration half-life determined in fish feeding studies which is indicative of a BCF above 5 000 L/kg, by comparison with other substances (supported by a long depuration half-life in mammalian liver).	Text has been adjusted by others.
UK		55	As per comment on paragraph 50, please ensure the uncertainty in the BMF/TMF data is acknowledged in the summary paragraph	No changes made. See comment above regarding uncertainties in BMF/TMF
UK	11	56 - 58	Please ensure that the input data for the LRT modelling are specified in the text	Not accepted as this information would require too much space. We will consider including the information in UNEP/POPS/POPRC.16/INF/… [NOTE: INF IN PREPARATION]
UK	11	56 - 58	Please consider the discussion of LRT in the REACH SVHC dossier (p33 – 35) which provides further useful information (for example sensitivity analysis based on the uncertainty in the physico-chemical data), and	Text has been edited and information from the REACH SVHC dossier (p33 – 35) concerning the uncertainty of the LRT modelling for DP has been included in the

Source of Comment	Page	Para	Comments on the first draft of the risk profile on Dechlorane Plus and its isomers	Response
			include this in the Risk Profile	text.
UK	12	62	Please delete the first sentence, as this does not appear to be relevant. Consequently please then re-word the second sentence to read *Moller et al (2010) collected samples of...*	Accepted. Text has been edited.
UK	14	79	1,3 and 1,5 DPMA are discussed in Appendix 2 of the REACH SVHC dossier – there maybe additional information useful to the Risk Profile.	We will include some of the information in the UNEP/POPS/POPRC.16/INF/… [NOTE: INF TO BE PREPARED]
UK		93	Please delete the first sentence as this does not discuss toxicity.	Sentence has been removed.
UK		94 - 105	A number of the cited studies are described in the ECHA SVHC dossier (appendix 1). Please copy the description from that dossier together with the relevant discussion) across to the Risk Profile to provide more details of these tests. It is very important that the Risk Profile is clear what the reliability of these studies is and whether adverse effects were observed.	We have included some more details from the studies, but many of the old studies are poorly described and have low liability so there are uncertainties about their relevance. And due to page limit description need to be some more generic.
UK		94 - 105	Please ensure that all studies reviewed in the SVHC dossier are included in the risk profile, including studies where no effects were observed. This is important for the overall weight of evidence	We have included some more details from the studies, but many of the old studies are poorly described and have low liability so there are uncertainties about their relevance.
UK		94 – 105	Please provide more details for all studies not cited in the ECHA SVHC dossier, for example: • Number of animals used for each test concentration • Number of replicates • Whether chemical analysis was performed? If so the frequency of monitoring and the results. • Conditions of the test – flow through, static etc • Standard validity criteria such as effects observed in controls, physico-chemical measurements such as temperature and dissolved oxygen • Whether a solvent was used • Which adverse effects were recorded in the study, and whether any were observed, e.g. mortality, growth, fecundity etc? • Provide details of what effects were observed, for example in the case of "neurobehavioral changes" exactly what changes were seen • Statistically significant of all observed effects • Whether a dose-response was observed for effects. For aquatic studies, whether the test concentrations exceeded the water solubility, and the consequence for any conclusions that can be drawn from the study results • Whether observations about undissolved material are included	Due to page limit we have to cannot give all details of the studies, but studies referred to is open access literature so they should be available to all. Several of the paragraphs has been revised to accommodate suggestions.

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			Taking all of the above points into account, please include a comment on the reliability and relevance of the study	
UK		94 – 105	Please summarise each study in one place. Currently it is difficult to follow what has been observed in a study when different effects are discussed in different paragraphs (e.g. Kang et al 2016 is discussed in paragraphs 96 and 99). You can use the summary paragraph(s) to bring similar effects together	We prefer to discuss all the studies on embryonic zebrafish in one paragraph and studies on adults in another since both exposure scheme, study design and endpoints are different.
UK		94 – 105	Please move any bioaccumulation effects to the bioaccumulation section. This includes effects such as maternal transfer.	Information has been moved.
UK		94	Please add: *DP has* an extremely *low water solubility of <2 ng/L…*	Some amendment has been added.
UK		94	Please replace the description of the Gong et al (2018) study with the text from REACH SVHC dossier: "The effects of Dechlorane Plus on P. subcapitata has been studied using a non-standard test method involving flow cytometry83 (Gong et al., 2013 [ABST]). The test was carried out by exposing P. subcapitata (initial cell density 105 cells/mL) to nominal concentrations of Dechlorane Plus of 13.51, 135.1 and 1 351 ng/L for up to 72 hours. Acetone (<0.1 v/v) was used as a cosolvent. The effects of exposure on cell membrane integrity, esterase activity, intracellular reactive oxygen species (ROS) generation and chlorophyll a fluorescence were determined after 2, 24, 48 and 72 hours' exposure. Some initial dose-related damage to the cell membrane was seen at two hours but this was minor, and the cells recovered with increasing exposure time. Esterase activity was found to be significantly increased compared with controls at two hours at concentrations of 135.1 and 1 351 ng/L, and at 24 hours at 135.1 ng/L but no significant induction was seen at any concentration at 48 and 72 hours. ROS generation was significantly increased at 48 hours at 13.51 and 135.1 ng/L but decreased at 1 351 ng/L. This was explained in terms of accumulation of intracellular ROS and induction of the antioxidant defenses in the cells, resulting in scavenging of the free radicals. At 72 hours the ROS generation in the exposed cells was similar to that in the control cells. Overall, Gong et al. (2013) [ABST] concluded that the results indicated that Dechlorane Plus showed a low toxicity and had marginal effects at concentrations up to 1 351 ng/L. The concentrations tested in this study are well in excess of the water solubility of the substance. This study is not mentioned in the registration dossier."	These are two different studies with two different organisms and timeframes. We have added some information summary of the 2013 study but not the whole proposed text due to page limits, and also added some details from Gong et al., 2018.
UK		96	No significant adverse effects on hatchability, survival or malformation were seen in the Noyes et al 2015 study. Please add this information to the Risk Profile.	Information has been added.

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UK		96	No significant adverse effects on hatchability, survival or malformation were seen in the Chen et al 2017 study. Please add this information to the Risk Profile.	Information has been added.
UK		100	Please move this paragraph to the bioaccumulation section	Comment noted. Some sentence was removed. However, it may be good to have a remainder in the toxicity section as well.
UK		101	Please provide more details about this study. From the current text, it is not possible to validate the findings, nor understand exactly what has been observed in the study. This is important given your conclusion in paragraph 121 that mixture toxicity effects are observed for DP.	More details have been added.
UK		106 - 7	Please provide details of the studies summarised in the ECHA SVHC dossier and Canadian assessment that *suggests that DP is not carcinogenic, mutagenic or toxic to reproduction* This is important both for the overall weight of evidence and allowing comparison to the studies currently cited in the Risk Profile.	Some more details of available studies has been provided.
UK		106	*Other effects in mammals have however been reported.* Please amend this sentence to indicate whether any adverse effects have been observed.	The sentence has been amended.
UK		107	Please add: Further toxicity testing has been required by ECHA following a compliance check on the REACH registration dossier. The deadline for the registrant to provide these data is 21/12/2020 (ECHA website).	Text has been added.
UK		115	Please discuss the importance of 1,3 and 1,5 DPMA in a separate paragraph in this section	We added a section in the toxicity chapter to discuss the importance of DPMA.
UK		115	Please provide one paragraph that summarises the adverse effects that have observed for DP in the available tests. Please provide a separate paragraph that summarises data describing where possible adverse effects might occur	Comment noted. A table summarising the most important studies have been included. No changes done to the sentence.
UK		120	*The concern for adverse effects relates to observed effects on the liver, thyroid hormone system, as well as neurotoxic and neurodevelopmental effects* Please indicate whether any of the observed effects are adverse themselves.	Potential was added before adverse effects to give an indication of meaning.
IPEN	3	6	Comment to " DP levels in remote regions and in the global oceans are generally much lower than levels reported in source regions near production sites and urban centres". -This phrasing implies that lower levels This phrasing bothered me already the first time I read it (but I forgot). It sort of implies that the much lower levels makes it of less concern. I would suggest deleting	Accepted. Text has been edited.
IPEN	3	6	Comment to "Reported levels of DP in remote areas are, with some exceptions, generally low "	Accepted. Text has been edited.

Source of Comment	Page	Para	Comments on the first draft of the risk profile on Dechlorane Plus and its isomers	Response
			- Suggest removing reference to. Compared with what? Using the term 'low' is vague. Low levels in remote regions may have significant biological effects, so should not be minimized. Suggest removing relative and arbitrary reference of 'low' levels in remote regions as this is scientifically invalid.	
IPEN	6	18	Please delete: and that issues related to the inclusion of Dechlorane Plus and its *syn*-isomer and *anti*-isomer should be dealt with in developing the draft risk profile. Comment: In the meeting report Annex I, there is no mention of any "issues" UNEP/POPS/POPRC.15/7 [HYPERLINK "http://www.pops.int/TheConvention/POPsReviewCommittee/Meetings/POPRC15/Overview/tabid/8052/Default.aspx"]	This part has been removed.
IPEN	6	19b	Please insert in 19b: and Alaska Community Action on Toxics (ACAT	This has been added.
IPEN	6	20	Please insert: . EU and EEA suppliers of substances on the Candidate List (supplied either on their own or in mixtures) have to provide their customers with a safety data sheet. Ref: https://echa.europa.eu/candidate-list-obligations	Comment noted, but no amendment to the text since this is already mentioned.
IPEN	7	24	Please define HSNO	
IPEN	7	28	"without contact intentions." what is meant by this? Please clarify and re-phrase.	Text has been edited. Also addressed by others.
IPEN	7	28	"However, consumer use is also indicated, e.g. for polymer preparations and compounds. " https://echa.europa.eu/documents/10162/2b729df8-a54f-1485-f77b-185457d96fbd	Text has been added.
IPEN	9	47	Consider defining EA	Done.
IPEN	10	49	Exchange "seagrass" with "marine algae"	Done
IPEN	10	52 and 53	Repetitive paragraph delete.	Done
IPEN	11	61	Please insert: "However, it should be noted that low levels of may have significant adverse effects. Ref eg. [HYPERLINK "https://jech.bmj.com/content/56/11/826.full"]	Text has been amended, but the proposed sentence relates to adverse effects, not long-range environmental transport, which is the topic of this section, and was not included.
IPEN	13	71	Please remove "at low concentrations"	Text has been edited.
IPEN	13	71	Please reorganise last sentence as suggested: " Human activity in the area is limited and ~~contamination levels of several POPs is low (Yang et al., 2013b; Wang et al., 2010b).~~ long-range air transport has been suggested as the predominant source of semi-volatile organic	Accepted.

Source of Comment	Page	Para	Comments on the first draft of the risk profile on Dechlorane Plus and its isomers	Response
			compounds in the area (Yang et al. 2013b; Wang et al. 2010b).	
IPEN	19	99	Please insert: "Anti-DP has a high persistence in the brain compared to the liver (Zhang et al., 2011)."	Sentence has been inserted.
IPEN	20	113	Please insert: " and possibly increasing with substitution for deca-BDE"	Text has been edited to capture the point that environmental levels may possibly increase due to DP being a substitute flame retardant.
POPRC member: Helen Jacobs			I think that the structural similarity between DP and the known POPs aldrin, chlordane & heptachlor should be mentioned in the executive summary. In paragraph 115 there is mention of structural similarity to aldrin, mirex, & chlordecone, but DP is actually more similar to chlordane & heptachlor than to mirex & chlordecone.	A reference to the analogue substances is added to paragraph 7 and 10.
POPRC member: Helen Jacobs			Paragraphs 52 & 53 are the same.	One is deleted.
POPRC member: Helen Jacobs			Some text seems to be missing from the last sentence of paragraph 96.	This paragraph has been amended.
POPRC member: Martien Janssen	General comment		Thanks to the authors for drafting the risk profile on Dechlorane Plus. Main points are summarised below, detail comments to be found in the text. The dossier provides a lot of information on various topics, but nowhere a conclusion is added to that and nowhere the findings are put into perspective. That could be added for instance after 2.1 on production, use and releases or after 2.3.1. on trends observed. In 2.1.1. the authors focus on production which at its maximum 5000 tonnes a year. Taking the previous risk profile for decaBDE we see that in the period 1974 – 2005 1.100.000 – 1.250.000 tonnes decaBDE was produced, which equals 40.000 tonnes a year. Those of the other BDEs would be present in their respective risk profiles. It would be good to mention these production volumes somewhere to put that of DP in perspective. The authors mention bioavailability in several places in the risk profile. For instance in para 40 and 45 (45.DP was first detected in archived fish (walleye) from Lake Erie in 2006, which suggested that DP was at least bioavailable) and para 52 (Field monitoring data suggest that DP is bioavailable and can achieve a relatively high body burden in some cases). However, the authors do never explain what they mean precisely with 'bioavailability', neither whether they use any criteria that indicate if a substance is bioavailable or not. Please add an explanation in the text, otherwise leave the reference to bioavailability out.	Thank you for your comments. General comment has been noted. Specific responses are generally provided where comments have been made in the text. Regarding production volumes of decaBDE, decaBDE is not the subject of this risk profile and therefore it is not relevant to mention this in the present draft. Production volumes of decaBDE and other listed PBDEs can be found in their respective risk profiles. The reference to bioavailability has been deleted due to comments provided by others. Comment to paras 66-68 are noted. Monitoring data, including DP levels and isomer ratios from remote levels are provided in the risk profile in accordance with Annex D (d) (i) "Measured levels of the chemical in locations distant from the sources of its release that are of potential concern" and (d) (i) "Monitoring data showing that long-range environmental transport of the chemical, with the potential for transfer to a receiving environment, may have occurred via air, water or migratory species". Information about measured concentrations has been added to those aquatic studies this

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			In the paragraphs 66 to 68 the authors provide concentrations of DP in polar regions with a lot of attention to fanti and fsyn. It is clear that any molecule found in polar regions should have reached that by long range transport in case there is no local source. However, that does not just mean that the criteria of the Convention have been met. The amounts of DP used in the experiments cited in paragraph 96 seem to be above the solubility. Critical review of these data would be on its place. Maternally transfer of DP is mentioned in the paragraph 10, 50, 91, 92, 93, 100, 110, 112 and 116, which suggest the uniqueness and the importance of the phenomena. However, when looking into the physiology handbooks the phenomena seems not to be so special and maternal transfer happens with almost every chemical. Blackburn (2012) Maternal, Fetal, & Neonatal Physiology: A Clinical Perspective. Citation: ‘,Dancis offers the following guidelines for thinking of placental transfer: „Ask not whether a maternal nutrient [or other substance] crosses the placenta. Ask rather how, how much and how fast. Ask as to fetal need. There **are a few compounds that are unable to cross** the placenta in detectable amounts given sufficient time and sensitivity of detection. ‘Unfortunately, the authors do not add an analysis on the amounts being transferred neither on the risks that should be accompanied with that transfer. It would be good if the authors could add some more scientific data on the concentrations that rather than making the statement.	is given. Maternal transfer is a common for many chemicals and lead to exposure in vulnerable windows of development. However, there are differences in the ability of chemicals to be maternal transferred so information concerning degree of transfer is relevant.
POPRC member: Martien Janssen	5	15	Please use the same sequence as above	Done.
POPRC member: Martien Janssen	9	37	Is this for one WWTP, for a whole region or for China as a total?	Text edited by others.
POPRC member: Martien Janssen	9	39	PBDE is not the topic of this risk profile	Deleted.
POPRC member: Martien Janssen	10	45	It is not clear what the authors mean with ‘bioavailable’ and thus which substances are non-bioavailable.	Text has been edited.
POPRC member: Martien Janssen	11	49	In Europe Seagrass is generally the name for Zostera marina; Ulva, at least the European version Ulva lactuca, is known as Sea-lettuce	No changes made but (marine algae) is added. The text in the risk profile is reflected as it is written in the published paper referenced.
POPRC member: Martien Janssen	11	50	DPMA is not subject to this submission. If it is relevant show that DPMA fulfills the annex D criteria, otherways it is recommended to skip this.	No changes made. It is relevant to mention bioaccumulation of DPMA, as an additional concern, since it can be released to the environment due to production and use of DP.

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POPRC member: Martien Janssen	11	52	There is no direct relationship between bioavailability and a high body burden, e.g. bioavailable substances need not to reach a high burden.	The paragraph has been edited due to comments received from others.
POPRC member: Martien Janssen	12	55	Please provide scientific evidence rather than citing ECHA.	The paragraph has been edited due to comments received from others.
POPRC member: Martien Janssen	12	61	Some text is lacking here	Text has been edited.
POPRC member: Martien Janssen	13	66	I do believe that all POPs can be found in bird eggs in the arctic or in carcasses. However, the authors should ask themselves whether the amounts transported are of serious concern referring to the text of Annex D, d (i). That necessitate not only measurments, but also an assumption on the amounts transported to these areas.	Information on the amounts of DP transported to remote regions via migratory birds is not available. However, the text has been amended to better indicate the possible scale of DP by reference to literature from other regions and on input of POPs via this pathway more generally.
POPRC member: Martien Janssen	13-14	67-68	It is not very clear what the authors try to tell here and what is the message of these two paragraphs. Certainly, in light of the first sentence of para 67. What do the authors of the profile believe themselves?	The text has been edited and a new introductory paragraph has been added.
POPRC member: Martien Janssen	14	70	Please write out DBDPE	Accepted
POPRC member: Martien Janssen	15	73	Which of the two reports mentioned in the reference list is referred to?	This has been clarified in the text by adding a letter behind the reference.
POPRC member: Martien Janssen	15	73	Can you indicate what has been measured precisely, guess not whole polar bear.	Accepted. Text has been edited to include further information on tissues used for DP measurements in the different species.
POPRC member: Martien Janssen	17	85	Please can you summarise the findings on the trends?	Accepted an additional sentence was added to the first paragraph of the section on environmental levels and trends.
POPRC member: Martien Janssen	18	2.4	The risk profile on methoxychlor provide some standards or risk limits. Is it possible to add some ADI's or intake limits in this chapter or are they non-existing?	With the sparsely data available for human health risk ADI limit will not add much to the discussion, and no thorough assessment has been done or can be done with the data available. Furthermore, this is a very persistent and very bioaccumulative substance and quite different from a pesticide that are designed to kill.
POPRC member: Martien Janssen	18	94	Please provide the exposure in µg/L as elsewhere in this profile	Values has been added.
POPRC member: Martien Janssen	18	95	According to the information in Table 2 the water solubility is <1.67 ng/L. How should we interpret the results presented in these two paragraphs 95 and 96 as the exposure levels are far above solubility?	We have added information on measured concentrations where those are available.
POPRC	20	101	Comment to "...from 6-96 hpf"	This has been written out for clarity.

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member: Martien Janssen			- What does this mean?	
POPRC member: Martien Janssen	20	102	Wouldn't it not be correct to conclude that this level is far above the highest concentration measured (47 □g/kg) in Chinese top soil near a e-Waste site (page 14) to put the amount in perspective?	No amendment was done to the text as responses were also seen at the lowest tested concentration 100 □g/kg.
POPRC member: Martien Janssen	20	104	Comment to " However, a shift in isomeric content of syn- and anti-DP was detected between stock solutions and hepatic tissue; the proportion of *syn*-DP increased from 0.34 to 0.65, as *anti*-DP decreased (0.66 to 0.35)." - What is the relationship with toxicity?	Sentence removed and included in bioaccumulation section.
POPRC member: Martien Janssen	21	112	This suggest that Dechlorane plus would be the FR most applied in electronics. I have strong doubts whether that is the case. The chlorinated FRs only represent 5% of the total FR market worldwide. Aluminium trioxide is the largest filling 38% of the FR market, followed by antomy oxides and organophosphorous and brominated ones: https://www.flameretardants-online.com/flame-retardants/market	This phrase was meant for the exposure way, and in real-life we always are exposed to a cocktail of substances where DP are one of several FRs. This paragraph was moved to the human exposure section.
POPRC member: Martien Janssen		113	Comment to " DP is currently a high production volume chemical that is marketed as a replacement for already regulated flame retardants, suggesting that use could increase in the future." - This is very speculative and not very realistic considering the time trends presented in for instance in Shen et al 2011 and Olukunle et al 2018.	No changes made. Results from trend-studies does not give a clear answer to whether the levels are increasing or decreasing. There is a possibility that the use of DP will increase as a result of bans of other FR that are used in similar applications. For substances such as flame retardants, there is usually a considerable lag between time trends in the production/use and the levels in the environment. Emissions from the use and the disposal phase of articles containing these FRs are responsible for this effect.
POPRC member	4	Table 1	Please specify the unit (for molecular weight).	The unit is added.
POPRC member	4	Table 2	Comment to water solubility -Please note that the difference in water solubility between the two sources (ECHA and OxyChem) is huge. Are you sure about the value reported by OxyChem datasheet? Please consider assessing the reliability of this source of information due to the difference of value compared to ECHA's reference. This information is key information for the section "toxicity on aquatic organism	The value reported by OxyChem is included in the Data Sheet for DP. A food note is added to table 2.
POPRC member	6	19	ECHA, 2017a, b); -Please refer to ECHA's support document on dechlorane plus instead of the Annex XV report	Support document to the SVHC report has been added to the reference list and referenced here.
POPRC member	6	20	Proposal for amendment: In 2018, DP was identified as Substances of Very High Concern (SVHC) and added to the REACH Candidate List due to their very persistent and very bioaccumulative properties (ECHA, 2017a). Companies may have legal obligations resulting from the inclusion of the substance in the	No changes made. Due to the page limitation of the RP it is not possible to add this text to the document. Furthermore, most of the information is already reflected in the current text.

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			Candidate List. These obligations may apply to the listed substance on its own, in mixtures or in articles. In particular, any supplier of articles containing a Candidate List substance above a concentration of 0.1 % (weight by weight) has communication obligations towards customers down the supply chain (and to consumers upon request). In addition, importers and producers of articles containing the substance have six months from the date of its inclusion in the Candidate List (15 January 2018) to notify ECHA if the substance is present in those articles in quantities totalling over one tonne per producer or importer per year and if the substance is present in those articles above a concentration of 0.1% w/w.	
POPRC member	8	30	"The overall DP concentration in e-waste was 33±11 mg/kg. This translates into an annual DP mass flow of 2.3±0.9 tonnes/year in all Swiss e-waste generated in 2011 (Taverna et al., 2017)." - I suggest moving this information to paragraph 38 where it fits better	Text has been moved.
POPRC member	8	33	(Link to ECHAs web site). Please add a link or a reference here	Added.
POPRC member	9	40	Comment to "Furthermore, studies with fish indicate a very low potential for biotransformation supporting that DP is metabolically stable (Tomy et al., 2008)." -I do not understand why this statement is in the persistence section. Please move it to the section "2.2.2" on bioaccumulation	No changes made. Lack of biotransformation in fish is used to support the evidence for persistency in the SVHC document.
POPRC member	9	41	Comment to "both substances" - You mean here for anti-DP and the commercial mixture of DP, please clarify here	Text amended.
POPRC member	9	43	I suggest moving this paragraph on photodegradation after the paragraph on hydrolysis (paragraph 40)	Accepted.
POPRC member	9	43	Please add at the end of this paragraph: Due to the large variation in the light available in different environmental compartments, the use of photolysis data is not considered in the persistence assessment	No changes made.
POPRC member	9	44	..."as well as low ability to biotransform in fish..." - This information should be moved to the bioaccumulation section	See comment above.
POPRC member	9	44	Comment to "... DP is very persistent." - Please specify in which compartments the substance is persistent	No changes made. The conclusion is that DP is persistent, and the reasoning is given in the text above.
POPRC member	10	47	Comment to "(10 and 100)" -Please specify the unit here 'mg/kg/d"	Added.
POPRC member	18	2.4.2.	Please consider the following comments as relevant for all ecotox studies in this section. Please specify if the concentrations reported in the ecotox studies are nominal or measured concentrations. Indeed, due to the substance	Information on nominal and measured concentrations has been added.

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			physico-chemical properties measured concentrations are preferred to nominal concentrations. It is unclear if the test concentrations are above the water solubility limit of the substance because if you consider the water solubility limit of <1.67 ng/L (ECHA, 2017) then all tests have been performed above the water solubility limit of DP and as such cannot be considered as reliable	